

REMARKS:

Claims 57-62 and 65-73 are in the case and presented for consideration.

Applicants thank the Examiner for the telephone interview of August 13, 2003.

Although the undersigned discussed the possibility of amending Claim 57 to include steps of actually using the two types of tools, it is believed the invention defined by the amended claims now presented are patentably distinct over the prior art for the reasons set forth in the following.

Claim 57 has been carefully amended to define the method in terms of manufacturing two different types of tools, a "first cutting tool" and a "second cutting tool". Each of these tools is selected from a particular group of tool types. Using insight gleaned by reading the present application, the skilled artisan is taught which tool types benefit most from the particular characteristics of the first cutting tool, as opposed to the second cutting tool. These different characteristics are imparted by either providing a homogeneous composition between the first and second hard material coatings (the first cutting tool) or an inhomogeneous composition for the first and second hard material coatings (the second cutting tool). The subject matter of cancelled Claims 63 and 64 are now in amended Claim 57.

An effort has been made to streamline the language of Claim 57 by now clearly referring to either the first cutting tool or the second cutting tool.

The Examiner's comments concerning the drawings is gratefully acknowledged and formal drawings will be provided at an appropriate time during the prosecution of this case.

Turning now to the Examiner's objections to the claims, Claim 72 has been corrected (using the word "for", rather than "foe").

Turning now to the Examiner's rejection of the claims under 35 U.S.C. 112, second paragraph, the claims have been reviewed throughout to improve their form and in a manner which is believed fully sufficient and correct under 35 U.S.C. 112, second paragraph.

For example, Claim 61 has been amended to properly correlate the first cutting tool to the homogeneous composition. The latter part of Claim 61 has also been revised to improve its readability. Claims 63 and 64 have been cancelled since their subject matter is now incorporated into Claim 57, and that subject matter has been corrected to properly refer to either the first or the second cutting tool.

Claim 65 continues to use relative terms but now relates the parameters relating to the first cutting tool to the same parameters of the second cutting tool. This also highlights another distinguishing feature of the invention in identifying at least some of the advantages of the first cutting tool with respect to the second cutting tool; namely, differences in their relative abilities to cut certain cross-sectional areas as compared to cutting speeds.

Claims 71 and 72 have also been amended to relate like parameters with respect to the first and second cutting tools.

Newly added Claim 73 defines aspects of the invention which were originally present in independent Claim 57; namely, characteristics of the two different types of metals to be cut by the two different types of cutting tools. While it is appreciated that Claim 73 defines characteristics of the workpieces to be cut by the two types of cutting tools manufactured according to the method of independent Claim 57, Claim 73 is believed proper to further limit Claim 57 by introducing further constraints on the method of manufacturing the first and second cutting tools since this further modifies the steps of composing the first and

second hard material layers of these two types of tools to cut the different workpiece types in accordance with the teaching of the present invention.

By this amendment, thus, the application and claims are believed to be in proper form under 35 U.S.C. 112, first and second paragraph.

Turning now to the prior art, the Examiner has rejected Claims 57-60, 63 and 65-72 as being obvious under 35 U.S.C. 103 from Leyendecker, et al (Leyendecker). The Examiner's detailed reasoning has been carefully reviewed. At paragraph 20 of the action, Claim 61 is also rejected as being obvious from a combination of Leyendecker taken in view of Hofmann, et al, and at paragraph 22, Claim 62 is rejected as being obvious from Leyendecker in view of Hofmann, et al, taken further in view of the U.S. patent to Munz, et al. At paragraph 24, Claim 64 is rejected as obvious from a combination of Leyendecker in view of the U.S. patent to Breuer, et al (now relevant to amended Claim 57).

The Examiner's detailed reasoning as well as the Examiner's response to applicants' prior comments have all been carefully considered in formulating the following comments and arguments.

The undersigned certainly appreciates the Examiner's position that intended use is not the same as actual use with regard to claiming the invention but despite this, the combination defined by Claim 57 and the remaining claims is sincerely believed to define an unobvious method over Leyendecker, taken alone or in combination with the prior art, despite the absence of any method steps of actually using the tools.

At paragraph 18 of the action, Leyendecker is held to teach the coating of a first cutting tool homogeneously in both the first and the second region, which first cutting tool is a drill, and that Leyendecker also teaches a second cutting tool coated inhomogeneously.

This second tool is again a drill.

In other words, Leyendecker provides a drill which is homogeneously coated and a drill which is inhomogeneously coated to compare the two drills, where the drill with the inhomogeneous coating is considered an improvement by Leyendecker. Thus, Leyendecker clearly teaches only to provide a hard material coating to two drills, one of these coatings being applied homogeneously and being unimproved, the other one inhomogeneously, and being improved.

The question, thus, is whether it would have been obvious to the skilled artisan, departing from Leyendecker's teaching; to manufacture one drill with a homogeneous coating and a second otherwise equal drill with an inhomogeneous coating of the same hard coating material for comparative purposes, to manufacture a first cutting tool which **may be** a drill (and therefore is a drill in at least one iteration of the claimed invention), with a homogeneous coating in opposition to the improved coating of Leyendecker, and to manufacture a second cutting tool, which is **clearly not a drill**, with an inhomogeneous coating.

Leyendecker's general teaching would be to coat both cutting tools inhomogeneously. Leyendecker clearly does not teach or suggest selecting whether the coating is applied homogeneously or inhomogeneously according to the respective specific tool to be coated. Leyendecker teaches in its introductory section that "Traditionally, coating process conditions were adjusted that a homogeneous coating was formed and the inhomogeneity was avoided." (column 1, lines 59-61). The finding of Leyendecker is based on the discovery (column 2, line 50) that an inhomogeneous coating is surprisingly durable and wear resistant. Thus, Leyendecker teaches a switching from former homogeneous to improved inhomogeneous coating, without any exception, and certainly,

does not suggest doing **both**, nor teach any reason for using both to manufacture these different types of tools.

Breuer, et al, which teaches that ball end milling cutters exist, in no way helps the skilled artisan reach the claimed method, since it does not contrast any beneficial characteristics of one type of tool to the other, nor teaches how to get these different characteristics. This teaching is also missing from Leyendecker so that their combination cannot supply the missing insight.

The present invention resides on the recognition that the prior art's attempt of generic appliance of homogeneous coating is erroneous in some cases but correct in others, and that Leyendecker's generic finding that inhomogeneous coating is an improvement is erroneous in some cases and correct in other cases. This present invention clearly recognizes **which** cutting tools are to be homogeneously coated for improved behavior and **which** cutting tools are to be inhomogeneously coated for improved behavior.

It seems to the undersigned that where one first generic teaching is known, and there is further known a second generic teaching which claims to be an improvement over the first, it is unobvious to recognize, according to the present invention that, in fact, **both** teachings are partly correct and partly wrong, and recognizing which teaching should be applied in which case.

Accordingly, it is strongly believed that Leyendecker alone or in combination with other prior art **does not** obviate the method as claimed in amended Claim 57.

The coatings of Leyendecker and of present Claim 57 are not equivalent, because the presently claimed coatings are applied to clearly **different** cutting tools in opposition to Leyendecker's drill. It is not correct to say that the drills of Leyendecker are coated using

the claimed method, because the claimed method does not teach coating drills inhomogeneously, but clearly to coat drills homogeneously. Leyendecker, however, reports an improvement with respect to drills, which are homogeneously coated, without specifying how the comparison was made with respect to working material, lubrication, etc. The present disclosure and invention, at Examples 3, 6 and 8, most accurately defines the testing conditions and shows that the finding of Leyendecker with respect to drills is at least questionable. According to Example 3, experiment number 30 disclosed an improvement of a factor of more than 6 (600%) reached with homogeneous coating compared with Example "B" with inhomogeneous coating. Example 6 leads to an improvement again in this range of magnitude, and Example 8 leads to an improvement by a factor of more than 2; i.e., more than 100%. Thus, an improvement is only reached if the correct coating is applied to the correct tool. These results could not be anticipated by any reading of Leyendecker, taken alone or in combination with the other references cited.

Leyendecker has no experimental results and provides insufficient insight or teaching to those skilled in the art to reach the present invention, or even have a reason to practice the present invention.

Method Claim 57 clearly defines a method which includes coating two different cutting tools with two different compositions of material to produce two different sets of advantages. Leyendecker would simply have the skilled artisan abandon one coating type or another without realizing that both homogeneous and inhomogeneous compositions have their advantages for certain types of tools, which are subjected to different cutting conditions and cutting materials.

Addressing in particular, paragraph 28 of the Action, Claim 57 claims more than the concept of the invention but instead, claims a method of making two different cutting tools using two different conditions and having two different sets of characteristics; not taught or suggested by Leyendecker or the secondary references.

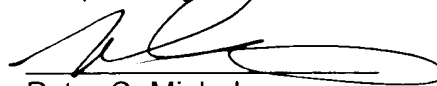
Accordingly, Claim 57 is believed patentable under 35 U.S.C. 102 and 103.

The dependent claims incrementally distinguish the present invention even further from the prior art taken separately or in combination. The secondary references are believed to be insufficient to steer the skilled artisan any closer to the invention as defined by the independent claim or by its dependent claims, than Leyendecker alone, so that the dependent claims are also believed patentable under 35 U.S.C. 102 and 103.

By this amendment, thus, the application and claims are believed to be in condition for allowance, and favorable action is respectfully requested.

The Examiner is respectfully invited to telephone the undersigned if any matters remain which can be treated by telephone interview in the interest of reaching a conclusion to the prosecution of this application.

Respectfully submitted,



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